



NORMAN Position Paper

Collection, exchange and interpretation of data on emerging substances

Towards a harmonised approach for collection and interpretation of data on emerging substances in support of European environmental policies

Background

Several tens of thousands of chemicals may enter the environment, many of them having potential toxic effects either as individual substances or mixtures. Despite the best efforts of the existing legislation (e.g. EU Water Framework Directive, REACH, Drinking Water Directive [and its update, in preparation]), no single EU Member State is able to deal with these emerging threats alone and there is an obvious need to bring together the existing know-how of all key environmental organisations in Europe and beyond. Exchange and sharing of all available data would be a first step in the process.

Numerous chemical monitoring activities are being carried out in the EU and worldwide. Significant amounts of data on the occurrence of environmental contaminants are also generated by the scientific community within the research projects supported *via* national and EU research programmes. Unfortunately, environmental monitoring data are not systematically collected at the EU level, despite considerable and longstanding efforts to generate them. The existing database systems (e.g. WISE and AIRBASE) are currently limited to a very small subset of existing monitoring data, mainly to data acquired through mandatory reporting under the EU legislation. Consequently, if an assessment of environmental exposure to chemicals is required, or if there is a need to identify new pollutants, or a policy effectiveness evaluation needs to be conducted, a series of *ad hoc* data collection activities must be initiated. Obviously, such *ad hoc* data collections are burdensome and expensive and incur huge time delays.

There is therefore an expressed need for a better coordinated, integrated approach to the collection, management and assessment of the existing data on emerging substances with adequate and comprehensive metadata. That would not only contribute to the improved assessment of relevant legislation and protection of citizens and the environment: it would also improve the facilitated generation and management of the data, measurement methodologies and QA/QC across the different environmental matrices. First steps were made recently by the EC towards the establishment of the Integrated Platform for Chemical Monitoring (IPChem), which should cover all chemical monitoring data (of which emerging substances are an important part).

NORMAN network

The NORMAN Association is a permanent network of reference laboratories, research centres and related organisations for monitoring of emerging environmental substances (NORMAN), established in 2009 as a requested result of the EC Framework Programme research project carried out in 2005 – 2008.

The NORMAN network, which today counts among its membership more than 50 environmental research organisations and reference laboratories from Europe and Canada (for details, see www.norman-network.net), is systematically collecting data on the occurrence of non-regulated substances in all environmental matrices and storing them in the EMPODAT database (see [www.norman-network.net //Databases //EMPODAT](http://www.norman-network.net//Databases//EMPODAT)). The database includes a special module for collection of data from bioassays addressing both the (eco)toxicity of environmental samples and the (eco)toxicity of individual substances. The data on the occurrence, (eco)toxicity and use of the



substances allow for their prioritisation. The NORMAN Working Group on prioritisation started its work in 2010 and the first prioritisation scheme has already been developed and built into the NORMAN database as automated procedures. The database also contains an automated procedure for evaluation of data quality based on the provided metadata. Mass spectrometric data – used for identification of “unknown” substances – are stored in the NORMAN MassBank database module (see [www.norman-network.net //Databases //NORMAN MassBank](http://www.norman-network.net//Databases//NORMAN%20MassBank)). These data represent a source of potential candidate substances which should be considered for inclusion when upgrading the current list of emerging substances.

Vision

NORMAN should become the primary data source and global one-stop-shop for all issues regarding emerging substances, contributing to the creation of the early-warning system for emerging pollutants and subsequent policy actions.

Management objectives - how to get there?

Data collection

- NORMAN members will continue with fully independent contributions of chemical and bioassay data in an agreed format (Data Collection Templates - DCTs).

Data quality

- The database experts nominated by the NORMAN Association members and other “regular” data providers will meet annually to assure the continuous improvement of the NORMAN databases and quality of the data.
- NORMAN members will be actively proposing the NORMAN format for collection of data on emerging substances to be used at the national level by the different countries.

Establishment of a regular and automated data collection scheme

- NORMAN Association members will provide data annually to the NORMAN databases.
- NORMAN Association members will propose at national level that nationally-funded research projects should provide all generated data on emerging substances to NORMAN databases, using reporting formats compatible with the NORMAN DCTs.
- NORMAN Association members will propose to adopt at the national level a scheme for data collection from all nationally funded projects using a common principle – if experimental data obtained within the project are not provided to a central database, the project does not receive funding.
- Suitable attempts will be made at the European level (DG Research) to require all EU-funded research projects to provide all data on emerging substances generated within their scope to a central open access database using reporting formats compatible with the NORMAN DCTs.

The use of the data in support of European environmental policies and data collection activities

- NORMAN will regularly submit its reports to the three Commission services - DG Environment, DG EUROSTAT, DG Joint Research Centre - and EEA, including a list of recommended substances to be considered for priority actions (e.g. monitoring, control measures). The role of NORMAN in the European prioritisation process should be formalised. NORMAN Association members will discuss the options with their national representatives at the DG ENV and REACH expert working groups.



- NORMAN will attempt to take a role in the preparatory activities related to the establishment of the new European Information Platform for Chemical Monitoring Data (IPChem), offering to contribute to the design of its architecture and regularly providing newly collected data on emerging substances.
- NORMAN will start exploring ways to join the attempts to integrate/link environmental data with health data/information (as part of the 'exposome' concept) indispensable for human health and well-being.

Presentation of the data to the public

- The NORMAN website and database development strategy will aim to move towards the implementation of a “public-friendly” interface, reflecting continuous feedback from users.

Possible contribution to the architecture of the European Information Platform for Chemical Monitoring Data (IPChem)

- NORMAN is committed to working towards the implementation of a user-friendly database structure which maximises the quantity, quality, coherence and homogeneity of the data, while minimising the reporting burden. NORMAN wishes to avoid any duplication of effort and is in favour of the efficient use of Community resources. It will therefore suggest the application of existing tools for the construction of the IPChem, e.g. shared EU-wide structured water language (REPORTNET) and shared reference list (REPORTNET Data Dictionary).
- As one of its main missions – the exchange of information on emerging substances – coincides with one of IPChem’s aims, NORMAN will stress the importance of the implementation of dynamic interfaces assuring the efficient and automatised exchange of data between databases, and will suggest that use should be made of the dedicated tools already available, e.g. REPORTNET data exchange modules.
- NORMAN will attempt to contribute to the development of a harmonised approach for the data collection method and the interpretation of environmental data that is required as a cornerstone for the establishment of the IPChem.

Based on experience from the collection and interpretation of data on emerging substances since 2005, the members of the NORMAN network are committed to achieve all of the above management objectives.

The NORMAN Association

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